

Wolff Law Offices, PLLC  
Response and Amendment

Patent Application  
Attorney Docket No.: STI-PAUS0001

In The Claims:

Please amend claims 1, 3, 12, 14, 18, 25, 30, 31, 38, 42, and 44-46 as follows:

1. (Currently Amended) A wireless communication system comprising:  
a receiver front end having a first set of components including a housing and configured so that the receiver front end may be upgraded to a second set of components also including the housing, the housing is a single enclosure for housing the receiver front end components, wherein the housing has three dimensions of sufficient size to accommodate at least a portion of the first set of components and all of the additional components added that make up the second set of components, and wherein the second set of components includes one or more cryogenically cooled components that are cooled to an HTS operating temperature(s).
2. (Previously Presented) The wireless communication system of claim 1, wherein the second set of components are mounted to the housing and includes at least one other component of the first set of components.
3. (Currently Amended) The wireless communication system of claim 1, ~~wherein the second set of components includes one or more cryogenically cooled components that are cooled to a temperature equal to or below the maximum upper limit for high temperature superconductors~~ the housing accommodates only the first set of components and the second set of components.
4. (Original) The wireless communication system of claim 3, wherein the one or more cryogenically cooled components includes at least one cryogenically cooled amplifier.

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5. (Original) The wireless communication system of claim 4, wherein the cryogenically cooled amplifier is a low noise amplifier.

6. (Previously Presented) The wireless communication system of claim 1, wherein the second set of components includes a cryogenic cooler, a heat sink, and a control board.

7. (Previously Presented) The wireless communication system of claim 1, wherein the second set of components includes one or more high temperature superconductor (HTS) components.

8. (Original) The wireless communication system of claim 7, wherein the one or more high temperature superconductor components includes at least one high temperature superconductor filter.

9. (Original) The wireless communication system of claim 1, wherein the second set of components includes at least one cryogenically cooled amplifier and at least one high temperature superconductor filter.

10. (Original) The wireless communication system of claim 1, wherein the second set of components includes a subset of the first set of components.

11. (Original) The wireless communication system of claim 10, in which the first set of components and the second set of components include a dual duplexer configured to provide one or more duplexed channels.

12. (Currently Amended) The wireless communication system of claim 11, in which the number of duplexed channels is six and the second set of components includes a high temperature superconductor ~~cooled to a temperature equal to or below the maximum upper limit necessary for high temperature superconductors to properly operate~~ cooled to an HTS operating temperature(s).

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13. (Original) The wireless communication system of claim 1, further comprising a base station wherein the receiver front end is a component coupled to the base station.

14. (Currently Amended) The wireless communication system of claim 1, wherein the housing is a single enclosure only large enough to house for housing the receiver front end components including dual duplexers for up to three channels of a cellular telephone base station transmitter; ~~the housing having three dimensions of sufficient size to accommodate at least a portion of the first set of components and all of the additional components added that make up the second set of components.~~

15. (Cancelled) ~~A receiver or transceiver front end, comprising a plurality of functional modules, wherein said plurality of modules includes at least one of a high temperature superconductor component and one of a cryogenically cooled component.~~

16. (Cancelled) ~~The method front end of claim 15, wherein the high temperature superconductor component is a high temperature superconductor filter.~~

17. (Cancelled) ~~The front end of claim 15, wherein the cryogenically cooled component is a cryogenically cooled amplifier.~~

18. (Currently Amended) A base station system, comprising:  
a receiver having an upgradeable front end including a housing, the front end including a first component that operates at a first predetermined characteristic and configured so that the front end may further include one or more second components housed by the same housing used for the first component, the second component(s) operating at a second predetermined characteristic and including one or more high temperature superconductor components that is cooled to an HTS operating temperature(s), wherein the housing for the receiver front end is a single housing having at least three dimensions of sufficient size so as to contain at least a portion of the first

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component and one or more of the second component, and the base station is a component of a wireless communication system.

19. (Original) The base station system of claim 18, wherein the first component is a low noise amplifier.

20. (Previously Presented) The base station system of claim 18, wherein the one or more second components includes a plurality of components mounted to the housing.

21. (Original) The base station system of claim 20, wherein the second component includes one or more cryogenically cooled components.

22. (Original) The base station system of claim 21, wherein the one or more cryogenically cooled components includes at least one cryogenically cooled amplifier.

23. (Original) The base station system of claim 22, wherein the cryogenically cooled amplifier is a low noise amplifier.

24. (Original) The base station system of claim 18, wherein the second component is further configured to provide greater channel selectivity than the first component.

25. (Currently Amended) The base station system of claim 24, wherein ~~the second component includes one or more high temperature superconductor components that is cooled to a temperature equal to or below the maximum upper limit for high temperature superconductors~~ wherein the housing accommodates only the first set of components and the second set of components.

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26. (Original) The base station system of claim 25, wherein the one or more high temperature superconductor components includes at least one high temperature superconductor filter.

27. (Original) The base station system of claim 18, wherein the second component includes a subset of the first component.

28. (Original) The base station system of claim 27, in which the first component and the second component includes a dual duplexer configured to provide one or more duplexed channels.

29. (Previously Presented) The base station system of claim 28, in which the number of duplexed channels is six and wherein the second component is cooled to a temperature equal to or below the maximum upper limit for high temperature superconductors.

30. (Currently Amended) The base station system of claim 18, wherein the housing for the receiver front end is a single housing only large enough to house receiver front end components including dual duplexers for up to three channels of a cellular telephone base station transmitter ~~having at least three dimensions of sufficient size so as to contain at least a portion of the first component and one or more of the second component, wherein the base station is a component of a wireless communication system.~~

31. (Currently Amended) A receiver or transceiver front end, comprising:  
a single housing configured to accommodate a first complete set of front end signal components that require a first volume of the housing, the housing oversized relative to the area needed to accommodate the first complete set of front end signal components so as to provide an additional volume for allowing the receiver front end to be upgraded to have a second complete set of receiver front end signal components, wherein the one or more high temperature superconductor components includes at least one high temperature superconductor filter cooled to an HTS operating temperature(s)

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and the single housing accommodates only the first set of components and the second set of components.

32. (Original) The front end of claim 31, wherein the second set of components is configured to provide greater received signal sensitivity than the first set of components.

33. (Original) The front end of claim 32, wherein the second set of components includes one or more cryogenically cooled components.

34. (Original) The front end of claim 33, wherein the one or more cryogenically cooled components includes at least one cryogenically cooled amplifier.

35. (Original) The front end of claim 34, wherein the cryogenically cooled amplifier is a low noise amplifier.

36. (Original) The front end of claim 35, wherein the second set of components is configured to provide greater channel selectivity than the first set of components.

37. (Original) The front end of claim 36, wherein the second set of components includes one or more high temperature superconductor components.

38. (Currently Amended) The front end of claim 37, wherein the second complete set of front end signal components is larger in size than a subset of the first complete set of front end signal components ~~one or more high temperature superconductor components includes at least one high temperature superconductor filter-cooled to a temperature equal to or below the maximum upper limit for high temperature superconductors.~~

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39. (Original) The front end of claim 31, wherein the second set of components includes a subset of the first set of components.

40. (Original) The front end of claim 31, wherein a total volume of the housing is approximately equal to or greater than 8064 cubic inches.

41. (Original) The front end of claim 31, wherein the housing is three dimensional and at least two of three dimensions of the housing is approximately equal to or greater than 24 inches.

42. (Currently Amended) A method for upgrading a receiver or transceiver front end, comprising the step of

providing a modular design so that one or more parts of a first complete receiver front end system may be used as parts of a second complete receiver front end system within the same housing, wherein the housing is a single enclosure for housing a first set of receiver front end components, wherein the housing has three dimensions of sufficient size to accommodate at least a portion of the first set of components and all of the additional components added that make up a second set of components included in the second complete receiver front end system, and wherein the second set of components includes one or more cryogenically cooled components that are cooled to an HTS operating temperature(s).

43. (Previously Presented) The method for upgrading a receiver or transceiver front end of claim 42, further comprising the steps of:

removing one or more parts of the first complete receiver front end system from the housing; and

installing one or more different parts to the housing so as to create the second complete receiver front end system.

44. (Currently Amended) A method of upgrading a receiver or transceiver front end, comprising the step of:

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providing a pre-upgraded front end including a plurality of functional modules, wherein said plurality of modules includes an enlarged single housing for housing all of the other modules and having an excess area of sufficient size to house all upgrade components, the single housing having three dimensions of sufficient size to accommodate at least a portion of the plurality of function modules and all of the additional modules added for upgrading, the plurality of function modules including a duplexer module, an amplifier module including a non-cryocooled low noise amplifier, and a power supply module.

45. (Currently Amended) The method of claim 44, further comprising the steps of:

- removing the power supply module;
- removing the amplifier module;
- adding a cryo-cooled system module that cools to an HTS operating temperature(s), wherein at least a portion of the cryo-cooled module is housed within the enlarged housing.

46. (Currently Amended) The method of claim 45, wherein the cryo-cooled system module ~~includes~~ is added by adding a cryogenically cooled high temperature superconductor filter, adding a cryogenically cooled amplifier, adding a cooler unit, adding a heat sink, and adding a control board.

47. (Previously Presented) The system of claim 18, wherein the housing includes two or more other housings integrated into a single housing enclosure that houses all components.